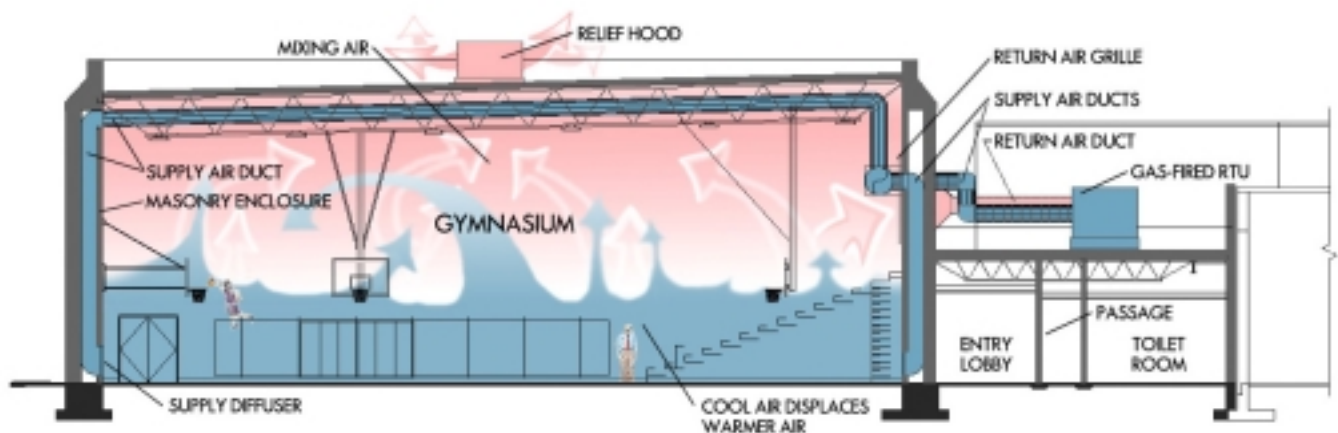


*St. Vrain Valley School District* is working to set a new standard for gymnasium design.

"The Mead Middle School gymnasium addition is one of many projects funded by the 2002 bond program," said Rex Hartman, Director of Operations and Maintenance. "This design is an example of how attention to efficiency opportunities at every step in the design process results in a design that is not only more efficient, but more versatile."

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# High Scores for Mead Middle School Gymnasium



*Displacement ventilation uses stratification, instead of mixing, to provide fresh air and comfortable temperatures to occupied areas (in blue).*

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**"A quiet, well-ventilated gym can double as a space for performances and assemblies, providing a cost-effective, flexible space for a school and a community."**

**- Rex Hartman**

## *Better and Quieter Airflow*

"We worked with our design team to develop an innovative design that addressed our concerns about acoustics, ventilation, comfort and energy efficiency," said Hartman. "And the design had to fit our budget."

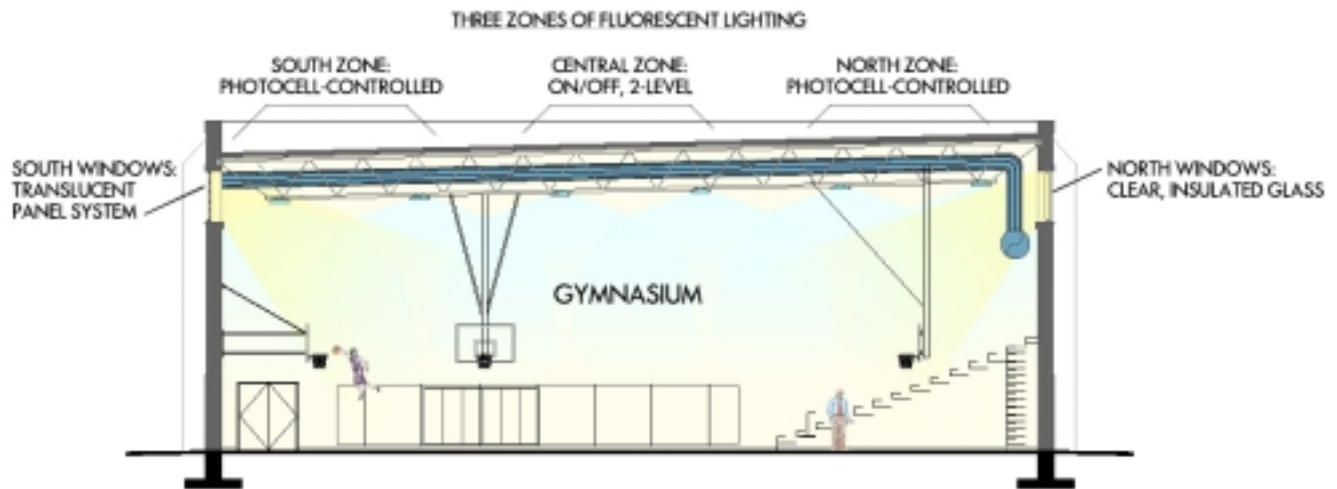
Most of us recall being in a gym that's been either too hot or too cold, smelly, or loud. Typical gymnasium designs rely on rooftop units to push air down from the high ceiling to finally reach people in the stands. This often results in uneven

temperatures, inadequate ventilation, and high levels of background noise.

In contrast, the Mead Middle School gymnasium design uses an innovative strategy called "displacement ventilation". The system works by providing conditioned air first to the areas where people are located — on the floor area and in the bleachers. And, instead of high velocity air, displacement ventilation uses large volumes of low velocity air which means quieter, more efficient operation.



# A High Performance Design Success Story



*The design team optimized and integrated the electrical and natural lighting, with attention to window and fixture placement, and lighting controls.*

## PROJECT DETAILS

**Facility Size:** 13,800 square foot gymnasium addition to 51,000 existing school

**Schedule:** Design early 2003, construction late 2003

**Facility Location:** Mead, 40 miles north of Denver

**Procurement:** Design-bid-build

**Budget** (for gymnasium and 2,500 square foot renovation of school): \$2.4 million budget, \$2.1 million bid in 2003

### Contact:

- Rex Hartman, 303-682-7269  
Hartman\_Rex@stvrain.k12.co.us

## *Integrated Lighting Design*

The design team optimized and integrated the electrical and natural lighting to ensure the best visual comfort, most flexibility, and most energy efficient option.

Three zones of fluorescent fixtures with dual-level switching allow for maximum flexibility to meet varying occupant needs. They will be controlled automatically by photocells to keep lights off when daylight is plentiful.

## *Does it cost more?*

Even with the additional features of displacement ventilation and integrated daylighting controls, the gymnasium addition came in under budget.

And the energy savings? St. Vrain Valley School District does not air-condition gymnasiums so cooling is not a factor, but savings are expected from more efficient ventilation and lighting.

"The Mead Middle School gymnasium will provide a test ground for displacement ventilation, and the integrated gym lighting and daylighting strategy. The lessons learned in this process will help us optimize future school construction projects in the district."

### Contact us!

The Rebuild Colorado program of the Governor's Office of Energy Management offers services and resources to school districts and other state and local governments.

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- [www.colorado.gov/rebuildco](http://www.colorado.gov/rebuildco)